< **[001]** METHOD FOR CONTROLLING A CABLE TREATING DEVICE~~[[<]]~~,
< CABLE TREATING DEVICE AND SYSTEM ENCOMPASSING SUCH A CABLE
< TREATING DEVICE

< **[002]** This application is a national stage completion of PCT/IB00/00214 filed
< February 28, 2000 which claims priority from Swiss Application No. 654/99 filed
< April 8, 1999.

< FIELD OF THE INVENTION

[003] The invention relates to a procedure ~~according to the preambles of claims 1 and 2 and a device according to the preambles of claims 10, 12 and 13~~, a special coiling device ~~for the devices according to claim s10, 12 and 13,~~ and a system ~~according to claim 28~~.

< **[004]** BACKGROUND OF THE INVENTION

< **[034]** SUMMARY OF THE INVENTION

< **[067]** BRIEF DESCRIPTION OF THE DRAWINGS

< **[077]** DETAILED DESCRIPTION OF THE INVENTION

1-28. (CANCELED).

29. (NEW) A system for preparing insulation stripping and further processing of a cable, the system comprising at least one of a first device for cable preparation being upstream of a first cable insulation stripping device (1a), at least one of a second device (2a) for further processing of cables being one of downstream and connected in parallel to the first cable insulation stripping device (1a);

wherein arranged in the at least one of the first devices is a first program control (3) and arranged in the at least one of the second devices is a second program control (4), the first program control (3) of the cable insulation stripping device (1a) provides, in an operating state, first process data specific to one or more of insulation stripping, the cable and a feed via at least one data transfer unit (5) in each case, to the second program control (4), a program (4a) of the second program control (4) comprises at least one computational instruction to combine the first process data with third process data specific to one of preparation and to further processing, to derive therefrom control-specific process data for drives of the at least one of the preparation device or the at least one of a second device (2a).

30. (NEW) The system according to claim 29, wherein a third program control (5a), chosen as a data transfer unit, is one of a control logic system, a computer and an interface (5b) in the form of a FIELD BUS.

31. (NEW) The system according to claim 30, wherein one of result and feed-relevant data from one of a process calculation or other data sources (6), fed into the second program control (4), are fed back from the second program control (4) to the first program control (3).

32. (NEW) The system according to claim 29, wherein each of the first device and the second device are one or more of a coiling device (2a), a wire stacker, a

prefeeder, a cable marking device, cable end preparation device, cable layer preparation device, a cable transport device, and a binding device.

33. (NEW) The system according to claim 32, wherein the device for cable end preparation comprises at least one of twisting, fluxing, tin-plating, soldering, welding, crimping, pressing-on of contacts or sleeves, mounting of seals, plug housings operations.

34. (NEW) The system according to claim 32, wherein the cable to be coiled on the coiling device (2a) is gripped by a clamping device (9) connected to the coiling device and is clamped under program control until a coiling process ends, the coiling device (2a) performing acceleration and rotary movements in at least one feed direction (23) and in at least one direction opposite to the feed direction for the cable during coiling process, by a program-controlled drive of said coiling device, so that a programmable tensile load is produced within a defined tension range during the coiling process, with avoidance of direct measurement of the tension, or the coiling device (2a) performing geometrically defined, tension-free laying of at least one cable end and preferably of all cable windings of the coil during processing, by the program-controlled drive of said coiling device.

35. (NEW) The system as claimed claim 29, wherein the first process data influences feed values of the coiling device (2a) via the third process data with a knowledge of the second process data which comprise in particular a current coiling diameter, to achieve a cable tension set by programming, within a limited tension range or tension-free laying, preferably without measuring tension.

36. (NEW) The system according to claim 29, wherein at least one rear end of a coiled cable remains in a cable feed arm (10) at the end of the coiling process, the coiling pan or the coiling plate (8) is rotated to a specific position at the end of the

coiling process so that at least one of the rear end and front end of the cable comes to rest in a specific, preprogrammable position.

37. (NEW) The system according to claim 29, wherein the first and second program control (3, 4) has an interface (5b) in the form of a FIELD BUS and, during operation, data relevant to one of feed and cable preparation is accessible by said interface.

38. (NEW) The system according to claim 29, wherein the second device is one or more of a coiling device (2a), a cable feed device (10), a drive and a clamping device (9) for a cable end; the second program control (4) is connected on an input side to at least one sensor (7) for second process data which, in an operating state, measures at least one geometric value of the coil, at least one position value or geometric value of the cable, and the second program comprises a computational instruction for calculating at least one theoretical cable feed velocity and theoretical coiling speed as fourth process data depending on at least one of a speed, a velocity and a radial distance to an axis (12) of rotation or speed and coil circumference, the computational instruction preferably making theoretical feed velocities or speeds comparable, as fourth process data, with the corresponding first and second process data, in order to determine the third process data therefrom.

39. (NEW) The system according to claim 38, wherein the coiling device (2a) comprises a controlled clamping device (9) for clamping one or more of a cable end and mandrels (13) which determine an internal diameter of the coil and can be displaced radially relative to the axis coil.

40. (NEW) The system according to claim 38, wherein the coiling device (2a) has at least one coiling pan and a coiling plate (8), the at least one coiling pan and the coiling plate (8) has a base (14) which can be displaced relative to the mandrels (13)

in the axial direction of the coil, and an automatic delivery device for the coil is provided which makes removal of the coil possible in one of a geometrically defined or undefined manner.

41. (NEW) The system according to claim 40, wherein the base (14) has removable spacers (15) which keep the coil spaced away from the base (14) so that the coil can be gripped from one of underneath or behind by at least one of an operator, a removal device and a binding device.

42. (NEW) The system according to claim 40, wherein at least one cable binding device (38) is coordinated with the coiling device (2a), the cable binding device (38) performs a binding process on the coil during operation in at least one position defined under program control.

43. (NEW) The system according to claim 38, wherein the sensor (7) is one of a coil diameter sensor, a cable position sensor and a cable geometry sensor, a mechanical sensor and an optoelectronic sensor.

44. (NEW) The system according to claim 29, wherein two adjacent coiling pans or coiling plates (8a, 8b) are provided, in which coils can be formed alternately under a process control, a common cable diverter (16) which has two separate cable feed channels (17a, 17b) which are independent of one another and can be alternately positioned and under program control, opposite a cable exit (18) of the cable preparation machine (1a) being mounted at one or more of upstream of the two coiling pans or coiling plates (8a, 8b), and a motor-controlled cable guide arm (19) which, during operation, makes positioning of the cable relative to the coiling pan or to the coiling plate (8) possible with the aid of the third process data under program control is coordinated with the one or more of the coiling pan, coiling plate (8a, 8b), and a common cover (20) is coordinated with the two coiling devices (8), the cover (20)

enables rotation or coiling operation of only the covered coiling device (8a) with control by a safety circuit.

45. (NEW) The system according to claim 44, wherein the cable diverter (16) is equipped with at least one third cable guide duct for not guiding the cable to the coiling pan or to the coiling plate (8), the cable diverter (16) is removable under motor power or manually.

46. (NEW) The system according to claim 29, wherein a cable feed arm (10) on a cable guide arm (19) is coordinated with one of a coiling pan or a coiling plate (8), the cable feed arm (10) is pivotable about an axis (21) and is geometrically related to a sensor connected to the second program control (4a) facilitating guidance of a cable, under program control, during coiling to monitor coil formation and the cable.

47. (NEW) The system according to claim 29, further comprising a cable diverter (16) and at least first and second cable guide ducts, at least the first cable guide duct is provided for feeding a cable to a coiling device and at least the second cable guide duct is provided for not feeding a cable to the coiling device, the one cable diverter (16) is removable so that fed cables are not transported into a coiling pan or onto a coiling plate (8).

48. (NEW) The system according to claim 29, wherein a position detection sensor (7) is arranged on a coiling pan or on a coiling plate (8), the drive of the coiling pan or of the coiling plate (8) is controlled so that a rotary position of the coiling pan or of the coiling plate (8) can be fixed for cable feed, the second program control (4a) comprising a sequence which makes laying one or more cable ends of the coil in a defined position for removal or binding purposes possible, by one or more of a cable guide arm (19), and rotary positioning of the coiling pan or of the coiling plate (8).